TECHNICAL SPECIFICATIONS

Three phase CT/PT operated alternating current Smart Meter of Accuracy Class 0.2S for HT Consumers.

D.1 General Standards Applicable for Meter

Unless otherwise specified elsewhere in this specification, the performance and testing of the meters shall conform to the following standards and amendments/revisions thereof.

Sl. No	Standard	Particulars
1	IS 16444: Part 2 with latest amendments	AC Static Transfom1er Operated Watt-hour and VAR-Hour Smart Meters, class 0.2S, 0.5S and lS
2	CBIP- Publication 325 with latest amendments	Standardization of AC Static Electrical Energy Meters
3	CBIP Technical report no. 111 with latest	Specification for Common Meter Reading Instrument
4	IS:9000 with latest amendments	Basic Environmental Testing Procedures for Electronic & Electrical Items.
5	IS 12063 with latest amendments	Degrees of protection provided by enclosures of electrical equipment.
6	IS 14451, Part-2: 1999 with latest amendments	Telemetering for consumption and demand. Direct digital transfer of meter values.
7	IS 4905: 1999 with latest amendments	Methods for Random sampling.
8	IS 12346 with latest amendments	Specifications for Testing Equipment for AC Energy meter.
9	IS 15959 Part 3 (as applicable) with latest amendments	Data exchange for electricity meter reading, tariff and load control: Companion specification

D.2 Communication

Meter shall have ability to communicate with HES on any one of the technologies mentioned in IS 16444 (RF/Cellular/PLC) in a secure manner. In case of cellular based meter, the meter shall accommodate SIM Card / e-SIM of any service provider. The meter shall log the removal of the plug-in type communication module removal /nonresponsive event with snapshot.

D.3 Other Specifications

Sl.No.	Particulars	Specifications
1	Applicable Standards	The meters shall comply with IS 16444: Part 2 for all requirements except for those parameters which have been specifically mentioned to be
2	Reference Voltage	[As per relevant IS]
3	Current Rating	Ib 5A/ l A (as applicable)
4	Starting Current	As per IS 16444: Part2
5	Accuracy	Class 0.2S as per IS 16444: Part 2
6	Limits of error	As per IS 16444: Part 2
7	Operating Temperature range	As per IS 16444: Part 2
8	Humidity	As per IS 16444: Part 2
9	Frequency	As per IS 16444: Part 2
10	Influence Quantities	As per IS 16444: Part 2
11	Power Consumption of meter excluding communication module	As per I S 16444: Part 2
12	Current and Voltage circuit	As per IS 16444: Part 2
13	Running at No Load	As per IS 16444: Part 2
14	Test output device	As per IS 16444: Part 2
15	Meter Display	As per IS 16444: Part 2
16	Time of Use (In case of net-meter both export & import parameters to be measured)	As per IS 15959: Part 3 (as applicable)
17	Parameters to be measured	As per IS 16444: Part 2 / IS 15959: Part 3 (as applicable)
18	Power Quality Information	As per IS 15959: Part 3 (as
19	Maximum Demand	As per IS 15959: Part 3 (as
20	Load Survey/Interval Data	As per IS 15959: Part 3 (as
21	LED/LCD Indicators	As per IS 16444: Part 2
22	Tamper/Event recording	As per IS 15959: Part 3 (as
23	Alarm	As per IS 16444 / IS 15959: Part 3 (as applicable)
24	Measuring Elements	As per IS 16444: Part 2

25	Anti-Tamper features	The meter shall continue working under tamper conditions as defined in IS 15959 Part 3 and would log the event and send alarm at HES after logging of the defined tamper features as per IS 15959 Part 3.
26	Programmability	As per IS 16444: Part 2
27	Communication	As per IS 16444: Part 2
28	Communication Protocol	As per IS 15959: Part 3 (as applicable)
29	Real time clock (RTC)	As per IS 16444: Part 2 /IS 15959: Part 3 (as applicable)
30	Data Retention	As per IS 16444: Part 2
31	Battery Backup	Meter shall be supplied with separate battery backup for RTC
32	Data display facility (manual/Auto)	As per IS 16444: Part 2. Data Display shall have following features: • High Resolution (Shall display energy values with resolution of 2 digits before decimal and 5 digits after decimal. • The Push button for manual scrolling in addition to auto scrolling with a persistence time of 10 seconds for each parameter
33	Remote Firmware Upgrade	As per IS 15959: Part 3 (as applicable)

34	Digital Input (DI)	The Smart meter should have the provision of sensing digital inputs via DI (Digital Input) port provided at the terminal block. The smart meter should register the digital input(s) sensed, upon reaching respective threshold (configurable) and the event shall be communicated to HES. The OBIS code required for this shall be provided during detailed engineering. The requisite power supply requirement (AC to DC auxiliary supply/ charger) for the DI should be made internal to the smart meter itself. In case the same is not feasible to be provided, bidder should provide external power supply with following specifications. a) Input voltage: 63.5V AC b) Operating voltage: 12V DC c) Contact Rating: 5A Continuous @30V DC, 25A for 3 sec No. of DIs - 04 Nos. DI for 4V(DC), 10

GUARANTEED TECHNICAL PARTICULARS (GTP):

Sl.No.	Description of the Features	Minimum Requirement of Features	As per Bidder Offer
1	Applicable Standards	The meters shall comply with IS 16444: Part2 for all requirements except for those parameters which have been specifically mentioned to be otherwise in this specification.	
2	Reference Voltage	[As per relevant IS]	
3	Current Rating	Ib 5A/1A	
4	Starting Current	As per IS 16444: Part2	
5	Accuracy	Class 0.2S as per IS 16444:	
6	Limits of error	As per IS 16444: Part2	
7	Operating Temperature	As per IS 16444: Part2	
8	Humidity	As per IS 16444: Part2	
9	Frequency	As per IS 16444: Part2	
10	influence Quantities	As per IS I6444: Part2	
11	Power Consumption of meter excluding communication module	As per IS 16444: Part2	

12	Current and Voltage	As per IS 16444: Part2	
13	Running at No	As per IS 16444: Part2	
14	Test output	As per IS 16444: Part2	
15	Meter Display	As per IS 16444:Part 2	
16	Time of Use (In case of net-meter both export & import parameters to be	As per IS I 5959 Part 3 (as applicable)	
17	Parameters to be measured	As per IS 16444:Part 2 / As per IS 15959:Part 3 (as applicable)	
18	Power Quality	As per IS 15959 Part 3 (as applicable)	
19	Maximum Demand	As per IS I 5959: Part 3 (as applicable)	
20	Load Survey/Interval	As per IS 15959: Part 3 (as applicable)	
21	LED/LCD	As per IS 16444 Part 2	
22	Tamper/ Event	As per IS 15959: Part 3 (as applicable)	
23	Alarm	As per IS 16444: Part 2 / IS 15959: Part 3 (as applicable)	
24	Measuring	As per IS 16444: Part 2	
25	Anti-Tamper features	The meter shall continue working under tamper conditions as defined in IS 15959 : Part 3 (as applicable) and would log the event and send alarm at HES after logging of the defined tamper features as per IS 15959: Part 3 (as applicable)	
26	Programmability	As per IS 16444 Part 2.	
27	Communication	As per IS 16444 Part 2	
28	Communication Protocol	As per IS 15959: Part 3 (as applicable)	
29	Real Time Clock (RTC)	As per IS 16444: Part 2 IS 15959: Part 3 (as applicable)	

30	Data Retention	As per IS 16444 Part 2	
31	Battery Backup	Meter shall be supplied with separate battery backup for RTC	
32	Data display facility (manual/Auto)	As per IS 16444: Part 2. Data Display shall have following features: • High Resolution (Shall display energy values with resolution of 2 digits before decimal and 5 digits after decimal. • The Push button for manual scrolling in addition to auto scrolling with a persistence time of 10 seconds for each parameter shall be	
33	Remote Firm ware Upgrade	As per IS 15959: Part 3 (as applicable)	